



MetroBridge Project Memo

To: Public Works Department, City of Chelsea

From: Urban Public Policy Lab Course, Political Science Department, Boston University

Date: May 2021

RE: Ideas for addressing littering in Chelsea

Introduction

In Spring 2021, students in Professor David Glick’s Urban Public Policy Lab course collaborated with the City of Chelsea to formulate affordable interventions for the city’s persistent littering challenge. Specifically, teams of students focused on affordable and positive (rather than penal) behaviorally-informed interventions with a focus on reducing litter in high foot traffic areas. Despite past efforts by the Department of Public Works (DPW) and community organizations, Chelsea struggles with litter in its downtown area due to various factors: heavily-trafficked bus route bifurcating the city, improper disposal of cigarette butts, high proportion of renters and non-permanent residents, and increased foot traffic in the warmer months. DPW has significantly increased the amount of receptacles in the downtown area and around bus stops, but litter persists.

Research Question & Methodology

Two teams, working independently, focused on different dimensions of the problem and different approaches to litter reduction. This work relies primarily on secondary research from academic and policy focused literatures, and on related programs and efforts elsewhere. One group took a narrow focus on reducing cigarette litter as Chelsea has a relatively large smoking population. 20.6% of the city’s adults smoke cigarettes regularly, representing roughly 5,411 residents, which is almost 7 points higher than the state average of 13.7% (Massachusetts Department of Public Health, 2019). The other group focused on broader interventions that indirectly tackle littering by building on existing community organizations’ frameworks and encouraging resident engagement.

Key Findings

Broken Windows Theory and Litter Begetting Litter: The “Broken Windows Theory” is often used (controversially) in criminology to understand why some areas are more susceptible to petty criminal behavior than others. The broader ideas apply to—and have been tested on—littering, as the theory is grounded in the idea that disorder triggers disorder. Experimental studies have fortified this finding by finding people littered less in visually appealing sites than in unsightly environments.

Indirect improvements such as beautification and education can help reduce littering: Research has shown that exposure to environmental artwork encourages pro-environmental behaviors. Community beautification directly contrasts the implications of the Broken Windows Theory by creating an eye-appealing environment with positive visual cues and community pride. One example is the Chinatown Alleyway Project in San Francisco, which is a series of murals to encourage tourism, promote local businesses, and capture cultural significance. According to local residents, the murals “make Chinatown look more clean,” and “people feel more responsibility for the neighborhood because of the art.” A second example is the PalmettoPride mural project in Columbia, South Carolina. According to an internal evaluation, the organization’s efforts, including the mural series accompanied by educational programs and clean-up days, reduced littering in the Columbia community by 60% while only costing \$2,500. Additional research suggests that educational campaigns and interventions are effective solutions that produce long-term anti-littering behavior. When children are exposed to positive experiences of nature, they are more likely to hold those views as adults, creating a long-term spillover effect.

Behavioral insights into compliance, awareness and motivation can help shift people’s littering actions: Design choices can make it easier for people to comply (not litter) and create psychological motivations to do so. In particular, making mundane behaviors more engaging and game-like can induce people to change their actions in a prosocial way. Additionally, simple changes to make it easier for people to find receptacles and to know how far away they are can increase proper disposal. Littering, especially cigarette littering, is such a habitual action that it is important to intervene right when someone is going to make the decision to litter.

Recommendations

The teams made specific recommendations. Their slides and full length reports include additional mock-ups, examples, and references. In brief, these recommendations include:

Three pronged proposal focused on cigarette litter

1. Interactive, Bright, Voting Butlers: “Ballot Bins” in high traffic areas

- [These cigarette butlers](#) (available for purchase) draw heavily on behavioral change research.
 - Eye catching yellow color
 - Provide two bins through which people can vote on the answer to a question by choosing where to dispose of their butts. Being asked a question (e.g. Dunkin Donuts vs. Starbucks) awakens the brain and more effectively engages us than when we’re simply instructed. Uses game elements and intrinsic motivation to turn a serious behavior into a fun and enjoyable one.
 - Two clear slots display that others in the community have already chosen to complete the action of using the butler and voting. This pressures the users into thinking that the proper disposal of their butt is the approved behavior in their community.

2. Visual leads to the butlers along with intermediate distance markers

- Use footprints as visual leads to make it easy to locate the butlers, and use intermediate distance markers to reinforce the idea that the next receptacle is not too far away.
- Studies found up to a 46% decrease in litter after adding the footprints to existing trash cans. Not only do the footprints help improve the visibility of the receptacles, thus making them easier to find, but they help engage social norms by serving as a visible reminder of the community's anti-littering sentiment. The distance markers can help someone hold on to their trash just a little bit longer.

3. Organized campaign around voting butlers to motivate participation

- Explain the new butlers and the effort with catchy #BinYourButt slogan to squarely focus the conversation on the use of these new butlers. Share the voting results in bus station advertisements.

Two pronged proposal focused on beautification and education

1. Community Murals with Environmental Themes

- Create series of murals with environment/nature themes to drive attention and empathy
 - i. Build on existing mural and other beautification work in city
- Beautiful hand painted mural could reduce littering and increase pride of place
- Attribution plaque (e.g. “Designed by Chelsea High School Students” (see education proposal below))
- Make a true community effort through community paint days and unveiling celebration

2. Educational approach through environmental student group at Chelsea High School

- Extracurricular club focused on beautification and environmental issues in Chelsea
- Mentorships with elementary, middle school students
- Major task: manage annual mural project
 - o Partner with Beautification Committee, art classes, local artists